

Report No.	19-170
Information Only - No Decision Required	

UPDATE ON PER- AND POLYFLUOROALKYL SUBSTANCES (PFAS) INVESTIGATIONS

1. PURPOSE

- 1.1. This report provides Council with an update on progress around investigations into contamination of land and water by **per- and polyfluoroalkyl substances** (PFAS) in the Horizons Region, primarily arising from the use of fire-fighting foam.
- 1.2. The focus of this report is on the technical findings of these investigations and excludes discussion around any regulatory activity. We provide an update on PFAS sampling programmes at Ohakea Air Base, Bulls public water supply, Palmerston North Airport and Feilding Fire Station. It is also noted that while the report touches on the proposed water supply for the Ohakea community, it is not the focus of this report.

2. EXECUTIVE SUMMARY

- 2.1. PFAS is an acronym for a group of chemical compounds known as per- and poly-fluorinated alkyl substances that have been extensively manufactured and used worldwide. PFAS is an emerging issue following detection in soil and water on and around **New Zealand Defence Force** (NZDF) and other sites in New Zealand.
- 2.2. In the Horizons Region, PFAS has been:
 - Identified in soil, surface water and groundwater in and around NZDF Base Ohakea, near Bulls, at levels that exceed a range of human health and environmental guideline values.
 - Detected at levels below human health drinking water guideline values in the Bulls public water supply, wastewater treatment plant influent and effluent streams, and in shallow groundwater in the vicinity of Bulls township.
 - Detected in soil, surface water and groundwater in and around Palmerston North Airport at levels that exceed human health and environmental guideline values.
 - Identified as a part of an investigation into further at-risk sites in the Horizons Region as part of a national PFAS site prioritisation work programme. **Fire and Emergency New Zealand** (FENZ) is also investigating its sites for potential PFAS contamination, after completing a prioritisation and assessment exercise last year. An independent experienced environmental consultancy, **Pattle Delamore Partners** (PDP), is carrying out Preliminary Site Investigations of eight prioritised sites around the country, which includes one site in our region (Feilding Fire Station).
- 2.3. This report provides a general update on activities relating to PFAS in the Horizons Region however, does not discuss regulatory actions undertaken in relation to any of these activities. Roles and responsibilities with regard to investigating and monitoring PFAS in the environment are set out in the following guidance document: <https://www.mfe.govt.nz/publications/hazards/pfas-investigation-response-and-funding-guidance>.
- 2.4. A comprehensive site investigation of Base Ohakea has been completed by NZDF and the final report has been received by Horizons (September 2019). The report, commissioned by NZDF and prepared by PDP, includes predictive modelling of the PFAS plume and concludes that the plume is likely persist over many decades. Uncertainty around the fate

and transport suggest that ongoing monitoring of the PFAS plume is required and this is now a key focus for local agencies. A copy of the PDP (2019) report 'RNZAF Base Ohakea PFAS Investigation: Comprehensive Site Investigation Report' outlines the findings of this study and a copy is available, along with other technical reports, on the MfE website: <https://www.mfe.govt.nz/land/pfas-and-poly-fluoroalkyl-substances/latest-updates/pfas-and-pfoa-documents-released-under-oia>.

- 2.5. A separate report, commissioned by Horizons and delivered by Jacobs, outlines the findings of an investigation into the detection of PFAS in the Bulls water supply bores. This study identified the presence (and potential sources) of PFAS in surface and groundwater in and around Bulls township. A report by Jacobs (2019) 'Bulls Water Supply PFAS Investigation' is now complete and a copy is available via Horizons' website. This report outlines recommended next steps for the Bulls investigation.
- 2.6. Other areas of investigation detailed in this report include **Palmerston North Airport Limited** (PNAL), which is led by PNAL in collaboration with local Councils (including Horizons); and Feilding Fire Station, led by FENZ in consultation with the AoG group.

3. RECOMMENDATION

That the Committee recommends that Council:

- a. receives the information contained in Report No. 19-170.
- b. approves the ongoing use of budget up to an amount of \$60,000 for monitoring and technical work around the issue of per- and polyfluoroalkyl substances and related substances. This budget is approved to be from general rate reserves, with expenditure to occur over the 2019-20 and 2020-21 financial years.

4. FINANCIAL IMPACT

- 4.1. Costs associated with PFAS investigations to date have included project management, sampling, analysis, reporting and national and community engagement. Some of these associated costs are additional to those identified as part of the proposed Science and Innovation work programme presented to Council through the recent Long Term Plan process.
- 4.2. Additional funding up to \$100,000 was approved by Council in May 2018 to investigate the source of PFAS in the Bulls water supply bores over the 2017-18 and 2018-19 years. The approximate spend to date, excluding staff time, is in the order of \$40,000 and we are now seeking permission to utilise the \$60,000 of remaining budget inside the 2019-20 and 2020-21 financial years.

5. COMMUNITY ENGAGEMENT

- 5.1. Community engagement has not been undertaken in preparation of this report.
- 5.2. To date the **Ministry for the Environment** (MfE) as the All of Government lead agency has led communication around the national response to PFAS. A guidance document 'PFAS Communication, Engagement and Information Sharing Guidelines' was developed by MfE and a copy is available on their website.
- 5.3. With regard to Ohakea, communication was initially lead by NZDF however, as investigations progressed, **Manawatū District Council** (MDC) has increasingly taken a lead role in communication locally with support from **Rangitīkei District Council** (RDC) and Horizons. RDC has also engaged with local water users as part of the Bulls water supply investigation, as required. Horizons staff have worked with local councils, central government and defence, attended community meetings, hui with local iwi, and meetings

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with land owners directly affected by contamination at Ohakea. Our intention is to continue to support our City and District Councils around community engagement, including providing communications support where necessary.

- 5.4. Communications around the detection of PFAS at Palmerston North Airport have been a collaborative initiative between **Palmerston North City Council** (PNCC), **Palmerston North Airport Limited** (PNAL) and Horizons.
- 5.5. Horizons' role to date has largely been around the provision of technical support for sampling investigations, participation in the AoG working group and communicating findings around investigations within the region.
- 5.6. Information for communities about PFAS is available:
 - Specific animal health or food safety questions can be directed to 0800 00 83 83
 - Specific health enquiries can be directed to your GP or Healthline 0800 611 116
 - Ministry for the Environment's website: <http://www.mfe.govt.nz/land/pfas-and-poly-fluoroalkyl-substances/about-pfas>

6. SIGNIFICANT BUSINESS RISK IMPACT

- 6.1. There is no immediate significant risk associated with this report.

7. BACKGROUND

- 7.1. PFAS is an acronym for a group of chemical compounds known as per- and polyfluoroalkyl substances that have been extensively manufactured and used worldwide.
- 7.2. PFAS compounds are a complex family of more than 3,000 synthetic fluorinated organic chemicals, although not all are currently in use or production. These compounds have been used for a wide range of products since the 1950s, including fire-fighting foams for flammable liquid fires. Their use at airports and other fire training sites across New Zealand has resulted in the accumulation of PFAS in soil and water in and around some sites in New Zealand, including NZDF Base Ohakea.
- 7.3. Knowledge and understanding of PFAS impacts on both human health and the environment are rapidly evolving. PFAS compounds in the environment are considered to be emerging contaminants of concern because they are known to be environmentally stable, mobile, persistent, and bioaccumulative.
- 7.4. There is evidence there may be health effects associated with sustained exposure to some PFAS. Interim guideline limits for drinking water have been established by the Ministry of Health (MoH, 2017), and Australian Government Department of Health (AGDoH, 2017) for non-potable water / contact recreation. For the sum of total PFOS + PFHxS the drinking water guideline limit is set at 0.07 µg/L (micrograms per litre) and for PFOA 0.56 µg/L. These levels are based on a person weighing 70kg drinking 2 litres of water everyday over a lifetime without any significant risk to health. Other guideline values for ecosystems and biota have also been applied to some studies.
- 7.5. We consulted with MidCentral District Public Health Service in the preparation of this report who confirmed that the current messaging from the **Ministry of Health** (MoH) is:

“There is no conclusive evidence that PFOS and PFOA exposure will result in future health problems. The evidence of health effects is not clear, and some effects may not be clinically significant. All New Zealanders are expected to have some measurable PFAS in their blood given the widespread use of PFAS since the 1950s.

A 2013 study for the Ministry of Health found that the concentrations of PFOA in the serum of adult New Zealanders are generally similar to, or lower than, those in the USA, Canada,

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Germany, and Australia and PFOS concentrations are significantly lower than those in USA, Canada, Germany, and Australia.

Long term studies in the United States (on occupationally-exposed people and exposed communities) have not consistently shown that PFAS exposure is linked to adverse health effects. However, many of these studies reportedly have significant methodological issues that limit the conclusions that can be drawn from their findings.”

Working with Central Government

- 7.6. An **All of Government** (AoG) governance group spanning MfE (as lead agency), **Ministry for Primary Industries** (MPI), **Environmental Protection Authority** (EPA), MoH, FENZ, NZDF and **Local Government New Zealand** (LGNZ) was established to oversee and co-ordinate the response to PFAS contamination in New Zealand.
- 7.7. A national working group provides technical guidance and co-ordination of national efforts, and presently includes representatives from local councils including Shayne Harris (Manawatū District Council) and Abby Matthews (Horizons Regional Council), as well as staff from FENZ and a number of other regional councils and unitary authorities.
- 7.8. The working group have largely been responsible for co-ordinating the compilation of national guidance material and ensuring the AoG governance group is aware of progress relating to both regional and national investigations. This has included the development of [draft guidelines for sampling and analysis of PFAS](#), and disposal of PFAS containing water to trade waste (lead by EPA).
- 7.9. Information is regularly updated on the MfE website: <http://www.mfe.govt.nz/land/pfas-and-poly-fluoroalkyl-substances>. This includes information about the AoG National PFAS Programme, the latest health and environmental information, as well as guidance material and information for agencies involved in responding to PFAS contamination.

8. DISCUSSION

Ohakea Air Base

- 8.1. Horizons was initially approached by MfE representatives in late November 2017, and officially advised of contamination at the Ohakea Air Base in December 2017. Investigations at Base Ohakea were initiated by NZDF in 2015 and identified high risk areas for PFAS contamination. Initial sampling undertaken by NZDF identified PFAS in soil, surface water and groundwater (including in a groundwater bore beyond the Ohakea property boundary) prompting the need for further investigation beyond Base Ohakea.
- 8.2. Investigations carried out by NZDF between 2015 and 2018 confirmed the presence of PFAS at and beyond Base Ohakea in soil, surface and groundwater. A number of these samples exceeded the interim drinking water guidelines (MoH, 2017); non-potable / contact recreation guideline; and a number of samples and/or stock watering and fodder irrigation screening values. Likely sources and pathways have also been identified through Detailed and Comprehensive Site Investigation reports.
- 8.3. Sampling of soil, watercress, vegetables, milk, eggs and cattle tissue and pig tissue was also completed. Where necessary, advice has been provided to land owners. Further advice around the consumption of kai awa species from the Makowhai Stream and nearby tributaries was also provided by MPI and Horizons, Manawatū District Council and MfE met with local iwi to discuss this advice and recommendations. A copy of this advice is available on the Horizons website.
- 8.4. A summary of findings is provided in the report ‘RNZAF Base Ohakea PFAS Investigation: Comprehensive Site Investigation Report’ commissioned by NZDF and completed by independent consultancy PDP. A copy of the report ‘RNZAF Base Ohakea PFAS Investigation: Comprehensive Site Investigation Report’ outlines the findings of the sampling investigations and PFAS plume modelling, and a copy is available, along with

other technical reports, on the MfE website: <https://www.mfe.govt.nz/land/pfas-and-poly-fluoroalkyl-substances/latest-updates/pfas-and-pfoa-documents-released-under-oia>. This report was recently received by Horizons (September 2019).

8.5. In addition to outlining the results of the various sampling programmes, the NZDF report covers predictions for the existing and future groundwater plume with the assistance of a 3D groundwater flow and transport model. The report authors acknowledge that there is significant uncertainty associated with estimates of plume 'above detection' extent (3,600 hectares) and mass (50 – 70 kg) of PFOS + PFHxS ($\geq 0.001 \mu\text{g/L}$). The report concludes (among other things) that:

- The plume is expected to continue migration and expansion in the current west to south-west direction of travel, before beginning a slow process of depletion.
- The maximum future extent of the plume area 'above detection' is estimated to peak at around 4,300 ha in more than 50 years time, and decrease below its current extent (area) in around 75 to 100 years.
- Modelling predictions for a number of different scenarios are also reported.

8.6. It should be noted that the maps below (Figures 1 and 2) published by NZDF show the plume extent where concentrations are greater than $0.06 \mu\text{g/L}$ i.e. where the plume is close to or above the interim drinking water guideline value of $0.07 \mu\text{g/L}$ rather than the 'above detection' extent which (the report indicates) covers a wider area.

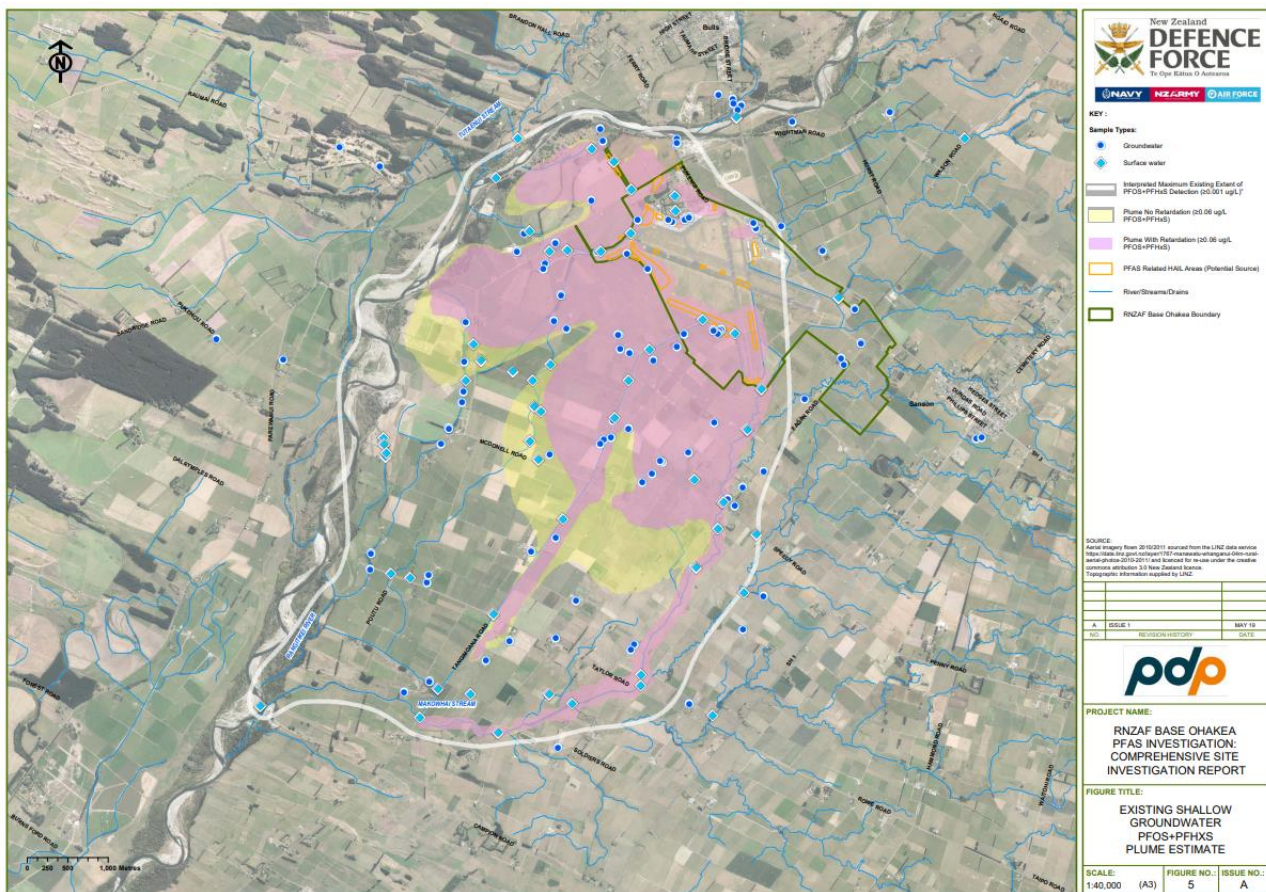


Figure 1 Current modelled extent of the PFAS plume is greater than $0.06 \mu\text{g/L}$ i.e. where the plume is close to or above drinking water guideline value of $0.07 \mu\text{g/L}$. The pink and yellow areas represent the plume under different potential groundwater conditions. Orange outlines show the PFAS potential source areas (designated HAIL sites). Dark blue circles show the groundwater bores sampled, and light blue diamonds, surface water sampling

sites. Image courtesy of NZDF and PDP sourced from www.mfe.govt.nz. Note the extent where PFAS is detectable is a larger area than the extent shown.

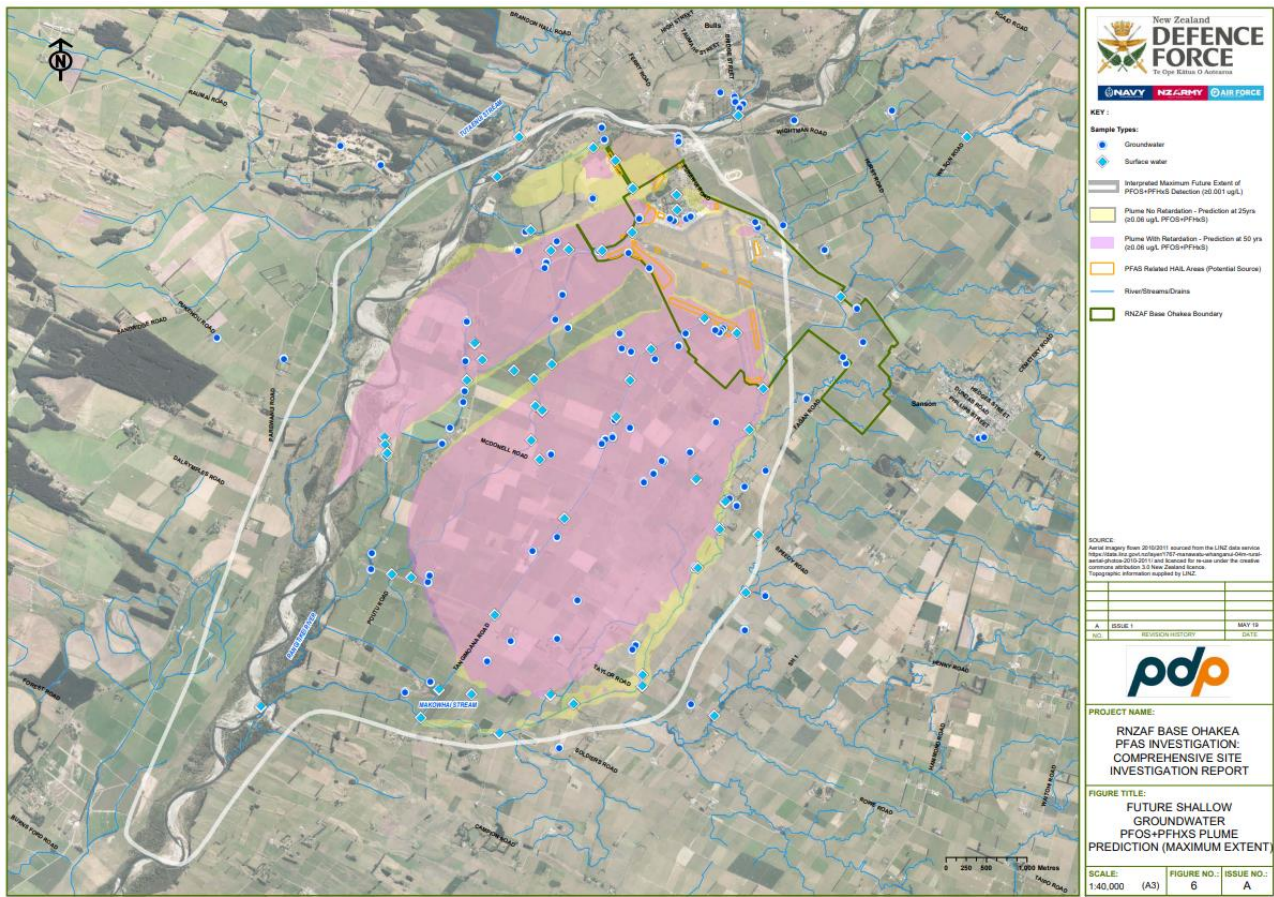


Figure 2 Predicted modelled extent of the PFAS plume >0.06 µg/L at 25-50 years. The pink and yellow areas represent the plume under different potential groundwater conditions. Orange outlines show the PFAS potential source areas (designated HAIL sites). Dark blues circles show the groundwater bores sampled, and light blue diamonds, surface water sampling sites. Image courtesy of NZDF and PDP sourced from www.mfe.govt.nz.

- 8.7. The report suggests that there is potentially a significantly greater mass of PFAS in the unsaturated soil (soil above the water table) than in groundwater and that leaching of PFAS from these soils may provide an ongoing and long-term source of PFAS to groundwater.
- 8.8. Surface water has also been identified by PDP as an important transport pathway for PFAS, with both the Makowhai Stream and Rangitikei River intercepting shallow groundwater flow. Plume migration/transport via groundwater beyond these surface water bodies cannot be ruled out however, due to the hydrogeology of the area, these surface water bodies likely represent the ultimate receiving environment.
- 8.9. The report concludes that the plume is expected to persist in concentrations >0.06 µg/L (i.e. close to, or above, drinking water guideline limits) for many decades. This has implications for local drinking water supplies in the long-term, including the Base Ohakea water supply and local private supplies for human consumption, and in some cases stock drinking water. Our understanding is that MDC has designed a water supply scheme to provide for the long-term supply of secure water to both Base Ohakea and surrounding water users, and that there is potentially scope for this supply to extend to Bulls township.
- 8.10. Presently, to our knowledge, there is no long-term monitoring programme for the Ohakea area proposed. Horizons is looking to design a monitoring programme that will primarily

focus on tracking the plume and checking model assumptions. This is the proposed focus for PFAS monitoring and research expenditure by Horizons over the coming year. We do not propose to extend this monitoring to biota and ecosystem health at present. Further resourcing will be required if Council wishes to pursue such investigations. A key part of the design of a monitoring programme will be defining what the monitoring and reporting will provide as well as understanding the cost implications of completing the monitoring and reporting on this information.

Bulls Water Supply Investigation

- 8.11. Sampling of the Bulls and Sanson water supplies was initially completed by NZDF at the request of Manawatū and Rangitīkei District Councils and Horizons Regional Council as part of the Base Ohakea investigation. Testing results were clear of PFAS in the Sanson water supply but returned low level positive results (below interim drinking water guideline limits) in four of the five Bulls water supply groundwater bores.
- 8.12. The source of PFAS in the Bulls water supply bores was unclear, and in July 2018, Horizons engaged contaminated land and hydrogeology experts from Jacobs to undertake an initial sampling investigation to determine the extent of PFAS in surface and groundwater and identify potential sources of contamination. A report by Jacobs (2019) 'Bulls Water Supply PFAS Investigation' is now complete and a copy is available via Horizons' website.
- 8.13. The Bulls water supply provides water to an estimated population of around 1,700. The bore field comprises five production wells located close to State Highway 3, 100 m to 200 m north of the Rangitikei River. Bulls town centre lies approximately 1.2 km to the north; Base Ohakea is located on the southern side of the Rangitikei River approximately 1 km southwest of the well field. Four of these bores are shallow (with screen depths ranging from 4.5 to 11.7 m depth). One bore is deeper (screened from 25.6 to 31.6 m depth) and appears to be somewhat confined from the shallow bores.
- 8.14. A number of sources of PFAS contamination in close proximity to the Bulls well field were initially identified. These included: Base Ohakea; the site of the Skyhawk crash that occurred in 1996; and potential sources of contamination within Bulls township. A former Feltex Carpets wool scouring plant was also identified on the eastern side of the Rangitīkei River (now Kakariki Proteins) some 7.8 km up-gradient of the Bulls well field.
- 8.15. The Skyhawk crash site has since been investigated by NZDF and now seems unlikely to be a PFAS source for the Bulls well field.
- 8.16. According to NZDF-commissioned reports the groundwater flow model developed for Base Ohakea (PDP, 2017) does not indicate hydraulic connection between Base Ohakea and the Bulls well field. Despite Horizons making multiple requests for further details around this modelling, we are yet to receive the necessary information. To help address this information gap, Jacobs has undertaken an initial assessment for Horizons which indicates that direct hydraulic connection between the Bulls well field and PFAS source areas within Base Ohakea is unlikely, even under pumping conditions at the well field. However, as we have been unable to assess the modelling completed for NZDF, uncertainty remains and at this stage, Base Ohakea remains a potential source of PFAS for the Bulls well field.
- 8.17. Three potential sources have been identified within Bulls township, comprising the Bulls Fire Station (storage and use of PFOS containing aqueous film forming foams (AFFF)), the former Bulls (Rangitīkei) Landfill (disposal of PFAS contaminated wastes) and the waste water treatment plant (WWTP) effluent ponds (from influent trade waste contaminated with PFAS).
- 8.18. The conceptual model provide by Jacobs is shown in Figure 3.

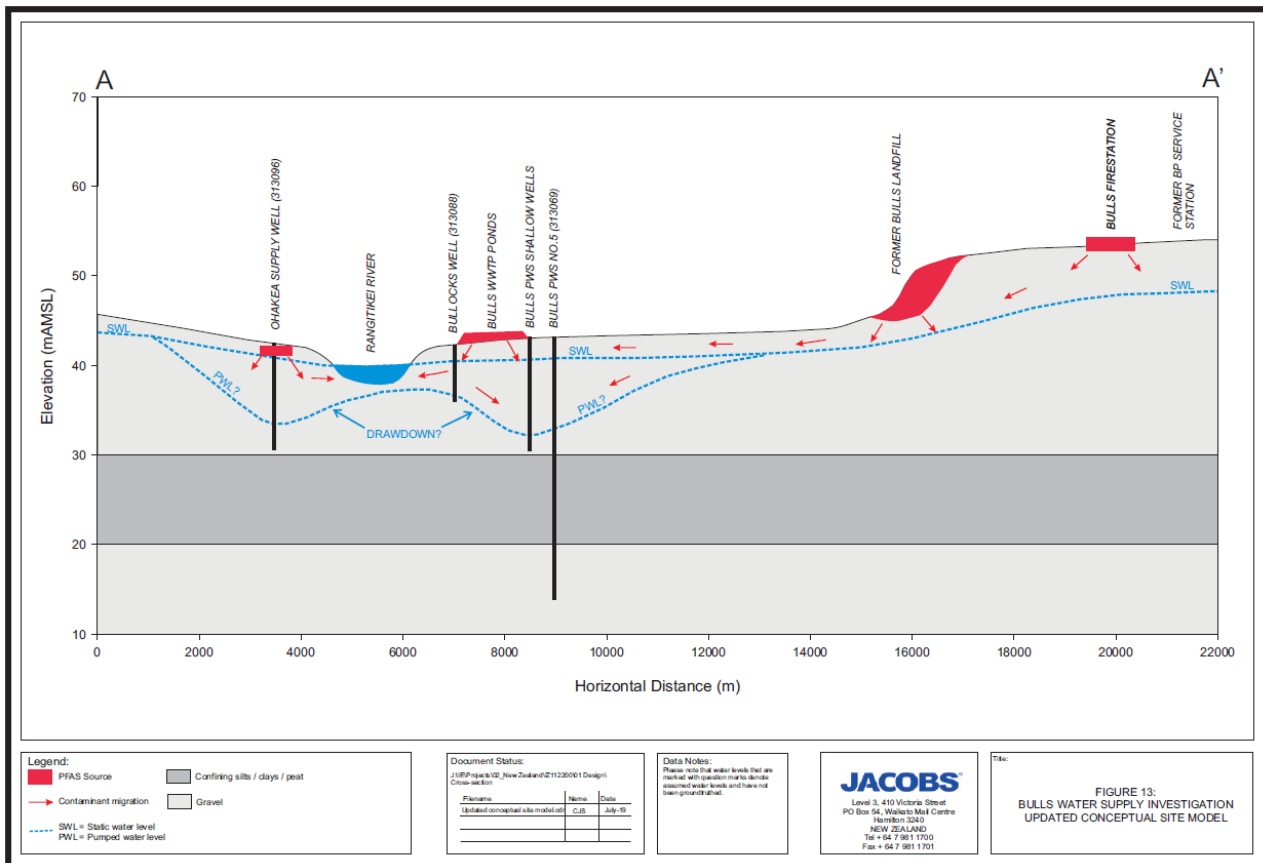


Figure 3 Conceptual model for the Bulls investigation. Water supply bores are shown as black vertical lines (Ohakea to the left of the river, Bullocks well directly to the right of the river and Bulls water supply bores further to the right). Potential sources include the Bulls Fire Station and former Bulls landfill (in red to the right of the cross section), Bulls wastewater treatment ponds (directly to the right of the river) and Ohakea (to the left). Red arrows indicate potential contaminant transport directions and the blue lines the static water level at rest and under pumping conditions. Source: Jacobs (2019).

- 8.19. A survey of surface waterways and groundwater bores was commissioned by Horizons and undertaken by Jacobs to establish if this contamination is more widespread than just the Bulls water supply. The initial focus of this study has been to establish the extent of contamination and identify the source (or sources) of PFAS.
- 8.20. Analytical results for groundwater samples targeting the potential source areas indicate the widespread presence of PFAS (PFOS and PFHxS) in shallow groundwater from beneath Bulls township to the Rangitikei River and extending from at least the southern edge of the former Bulls landfill to the WWTP, a distance of about 2 km. The groundwater contains concentrations of PFOS & PFHxS between approximately 0.01 µg/L and 0.02 µg/L. The observed concentrations are low in comparison to concentrations detected in shallow groundwater within and immediately down gradient of Base Ohakea and are less than the adopted drinking water standards for PFOS & PFHxS of 0.07 µg/L and PFOA of 0.56 µg/L.
- 8.21. Presently, given the levels of PFAS detected in the environment, there does not appear to be an immediate health risk posed to the local community as a result of the positive detections of PFAS in the Bulls water supply and this water is considered safe for human consumption. However, there are a number of further actions that could be undertaken by RDC and Horizons to further refine our understanding of the presence of PFAS in the environment in and around Bulls township.
- 8.22. Actions that RDC may wish to undertake include:

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- Compile records of the operational history of the Bulls Landfill, including the origin and types of waste, to determine whether the landfill accepted waste from Base Ohakea, the Skyhawk crash site, the former Feltex Carpets wool scouring operations at Kakariki or sludge from the Bulls WWTP.
- Consider the installation of groundwater monitoring wells at the toe and within the landfill so that ongoing monitoring and investigation can be undertaken.
- Complete a review of the construction of the WWTP ponds to assess likelihood of losses to groundwater.
- Review sludge disposal practises for the WWTP ponds to ensure appropriate management of potentially PFAS contaminated sludge.

8.23. Actions for Horizons to undertake include:

- Further assessment of Base Ohakea as a PFAS source, involving the compilation of a hydrogeological conceptual model based on lithological data for bores supplied by HRC using Leapfrog™ software and clarification in relation to pumping conditions and river flows assumed in the Base Ohakea groundwater flow model. These data may assist with further understanding hydraulic connectivity of groundwater in the shallow Holocene terrace gravels on the northern and southern side of the Rangitīkei River near the Bulls well field, and the potential for PFAS impacted groundwater to be drawn into the Bulls well field from PFAS sources at Base Ohakea.
- It appears that no further useful information is currently available from FENZ in relation to PFAS containing foam storage and management at the Bull fire station. It is recommended that FENZ be provided with the findings of this investigation. (Note this action has already been completed).
- Sample the discharge from the Kakariki Proteins effluent ponds, with analysis for PFAS.

8.24. While the current monitoring suggests that PFAS levels are below guideline values, we recommend that ongoing monitoring of the Bulls water supply is also considered and RDC continue to consider the findings of the report in relation to the drinking water supply, landfill and wastewater treatment plant.

Palmerston North Airport

- 8.25. In November 2018, Horizons worked with staff from Palmerston North Airport (PNAL), Palmerston North City Council (PNCC) and MidCentral Public Health Service to identify and investigate contamination arising from historic fire testing at the airport.
- 8.26. Initial testing of soil, sediment and water identified PFAS in the former training area around the rescue fire station, and concentrations of PFOS and PFHxS in excess of the interim drinking water guidelines in all surface water samples taken from the stream north of the airport and the drain to the south of the airport. Subsequent sampling identified elevated concentrations in the Mangaone Stream that exceed the interim drinking-water guidelines. None of the samples exceeded the aquatic ecotoxic limits for 90 per cent of species in disturbed water courses.
- 8.27. Twelve private water supply bores were also tested. One of these samples had trace levels of PFOS above the limit of reporting, but 58 times lower than the interim drinking-water guideline value. PFAS were not detected in the remaining eleven bore samples.
- 8.28. PNCC confirmed through testing that there is no presence of PFAS in the public water supply and that this water is safe for consumption. We consider the future risk to this supply to be negligible, given the depth of these bores and relatively confined nature of the deeper strata.

- 8.29. MidCentral Health advised at the time of reporting that, given the levels detected, there was no acute health risk to residents arising from the presence of PFAS in or around PNAL. This means that exposure to PFOS and/or PFOA will not pose any significant health effects today however, MPI advised people to avoid food gathering such as eels and watercress from:
- Mangaone Stream
 - Richardsons Line Drain (including its headwater tributaries that cross Railway Road to the east of the Airport)
 - Various streams near the Airport flowing through – Madison Ave and Jefferson Cres area
 - Clearview Park and McGregor Street.
- 8.30. Horizons engaged with MPI in drafting this report, and their recommendation to avoid food gathering at the above locations remains in place.

Feilding Fire Station

- 8.31. Fire and Emergency New Zealand (FENZ) is investigating its sites for potential PFAS contamination, after completing a prioritisation and assessment exercise last year. An independent experienced environmental consultancy, Pattle Delamore Partners (PDP), is carrying out Preliminary Site Investigations of eight prioritised sites around the country. One of these sites (Feilding Fire Station) is located within the Horizons Region. PDP completed the Preliminary Site Investigation at Feilding Fire Station between June and September 2019.
- 8.32. Fire and Emergency New Zealand (FENZ) received the technical recommendations from PDP and based on these, PDP carried out preliminary soil sampling at Feilding. FENZ is waiting to receive the sampling results, and will provide an update stakeholders on the findings and any next steps once these results have been received. Information about FENZ PFAS investigations can be found here: <https://fireandemergency.nz/research-and-reports/per-and-poly-fluoroalkyl-substances-pfas/>.

9. CONSULTATION

- 9.1. Limited consultation on the content of this report was undertaken with a range of agencies and stakeholders. FENZ provided an update on Feilding Fire Station. MidCentral District Public Health provided an update on health advice. MPI was also consulted around food gathering advice associated with the Palmerston North Airport. A copy of the Bulls report was shared with and discussed with MDC and RDC representatives prior to this paper being produced.

10. SUMMARY

- 10.1. Horizons has been working with government agencies and key stakeholders around PFAS since we were officially notified of contamination at Ohakea in December 2017.
- 10.2. Horizons' efforts to date have largely focussed on investigating PFAS detections in the Bulls water supply and supporting the AoG working group. We have also provided technical support to MDC around the development of the water supply proposal. Communication of the outcome of various investigations underway in the region has also been a key focus, with this November Strategy and Policy 2019 report providing the most recent update.
- 10.3. Jacobs (2019) recommend a number of further actions to refine the Bulls Water Supply investigation. Horizons will continue working with RDC, FENZ and relevant stakeholders to determine the next steps for this investigation. Further work will include sampling of the discharge from the Kakariki Proteins effluent ponds, with analysis for PFAS.

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- 10.4. With the initial site investigation complete, the focus of the Base Ohakea investigation now moves to ongoing monitoring of the PFAS plume. Horizons staff are currently liaising with NZDF and local Councils, along with the AoG group to establish a future work programme.

11. TIMELINE / NEXT STEPS

- 11.1. Horizons continues to support PFAS work programmes in the region through participation in the AoG working group, and liaison with agencies and organisations investigating PFAS contamination in our region. The most recent working group meeting took place on Wednesday 6 November 2019, with the next meeting scheduled for Wednesday 4 December 2019.
- 11.2. Further work to establish an ongoing monitoring programme for Ohakea is expected to be initiated inside the current reporting year and delivered over the next 12 months.
- 11.3. A meeting between Horizons and Palmerston North Airport is tentatively planned for November 2019 (date to be confirmed) and we await further information from FENZ following the investigation at Feilding Fire Station.

12. SIGNIFICANCE

- 12.1. This is not a significant decision according to the Council's Policy on Significance and Engagement.

13. REFERENCES

- 13.1. Jacobs (2019) Bulls Water Supply PFAS Investigation. Report prepared for Horizons Regional Council, October 2019.
- 13.2. PDP (2019) RNZAF Base Ohakea PFAS Investigation: Comprehensive Site Investigation Report. Report prepared for New Zealand Defence Force, August 2019.
- 13.3. PDP (2017) PNZDF Ohakea – Groundwater Assessment and PFAS Fate Prediction. Report prepared for New Zealand Defence Force, November 2017.

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ANNEXES

There are no attachments for this report.